

Appl. No.: 10/812,748

Amdt. dated:

Reply to Office action of: 09/21/2005

REMARKS / ARGUMENTS

The applicants acknowledge the allowance of claims 18 and 21-31 in the Office action of September 21, 2005. In the Office action claims 1, 12, 17, 19 and 20 were rejected and claims 2-11 and 13-16 were objected to as dependent upon a rejected base claim but allowable if rewritten in independent form. The applicants respectfully request amendment of claims 1, 12, 17, 19 and 20 and the addition of new claims 33-35 which are consistent with the screw actuators illustrated in FIGS. 7 and 8 ("Species B").

Claims 1, 12 and 17 stand rejected under 35 U.S.C. 102(b) as being anticipated by Cottrell, US Patent No. 6,575,678 (Cottrell) which, according to the Office action, discloses a screw actuator with sliding members that move relative to each other in response to turning of a screw. To make these claims distinguish more clearly over Cottrell, claims 1 and 12 have been amended to specify that rotation of the screw forces the sliding movement between the elongate members. In contrast, Cottrell discloses a hydraulic cylinder that includes a screw that rotates in response to relative movement of the cylinder's housing 10 and rod/piston assembly 30 rather than forcing it.

The relative movement of the rod/piston assembly and the cylinder is forced by a flow of pressurized fluid that acts on the piston, and not by rotation of the screw 40. The cylinder of Cottrell is extended when pressurized fluid is introduced to chamber 22 (see FIG. 2C) through port 15b (col. 8, line(s) 21-46). The pressure acting on the face (wall) 33a of the piston 33 forces the piston/rod assembly 30 and the "screw shaft" 40 to translate in unison relative to the cylinder housing 10, in the +x direction, disengaging the screw shaft 40 from the locking rod 16. The screw shaft 40 translates in unison with the piston/rod assembly until the bearing wall 45 contacts the bearing 17 and the screw shaft 40 can translate no further in the cylinder housing 10. A continued flow of pressurized fluid into chamber 22 urges further extension of the piston/rod assembly, causing the screw shaft to unscrew from the nut (see FIG. 2B) because the threads of the nut 32, attached to the piston/rod assembly 33, exert a force on the mating threads of the threaded portion 42 of the screw shaft 40 that urges the screw to rotate.

If the pressure is released from chamber 22, the piston/rod assembly 30 and the screw shaft 40 will translate, in unison, in the -x direction until the end of the screw shaft 40 engages the locking rod 16. Engagement by the locking rod 16 prevents rotation of the screw shaft 40.

Appl. No.: 10/812,748

Am dt. dated:

Reply to Office action of: 09/21/2005

The piston/rod assembly and cylinder assembly cannot rotate because of the cross pinned connections to the structure of the vehicle. If fluid pressure in chamber 22 is further reduced, the locking of the screw against rotation prevents retraction of the piston/rod assembly 30.

To retract the piston/rod assembly 30 in the cylinder housing 10, pressurized fluid is simultaneously introduced to the ports 15a and 15c which are connected through the pipe 105 (col. 9, line(s) 26-56). Since the area of the stub end wall 44 of the screw shaft 40 is greater than that of the piston wall 33b, the piston/rod assembly 30 and the screw shaft initially translate in unison in the +x direction. This initial extension permits the locking rod 16 to disengage from the screw shaft releasing the screw shaft to rotate. When the bearing wall 45 contacts the bearing 17, further translation of the screw shaft 40 in the + x direction is prevented by the bearing. The pressurized fluid continues to act on the piston wall 33b and urge the piston/rod assembly to move in the -x direction but movement of the screw shaft in the -x direction is prevented by the force exerted on the stub end wall 44 by the pressurized fluid in chamber 21. The interaction of the threads of the nut and the screw shaft causes the screw shaft to rotate and the length of screw shaft projecting from the nut to shorten as the piston/rod assembly is retracted. The applicants respectfully submit Cottrell does not anticipate claims 1 and 12, as amended, because the screw of Cottrell rotates in response to relative movement of the cylinder housing and the piston/rod assembly and rotation of the screw does not force the piston/rod assembly 30 to move relative to the cylinder housing 10. The applicants respectfully request withdrawal of the rejection and the allowance of claims 1 and 12.

With regard to claim 17, the applicants request amendment of the claim to make the terminology consistent with claim 12. Applicants submit that claim 17 is dependent from claim 12 and inherits all of the limitations of claim 12. The applicants respectfully submit that since claim 12 is not anticipated by Cottrell for the reasons stated above, claim 17 is not anticipated. The applicants respectfully request withdrawal of the rejection and allowance of claim 17.

Claims 2-11 and 13-16 stand objected to as allowable but dependent from respective rejected base claims 1 and 12. The applicant requests withdrawal of the rejection of claims 1 and 12 for the reasons stated above and the withdrawal of the objection and allowance of claims 2-11 and 13-16.

Claims 19 and 20 stand rejected under 35 U.S.C. 112 as indefinite because there was

Appl. No.: 10/812,748

Amdt. dated:

Reply to Office action of: 09/21/2005

insufficient antecedent basis for the term "a screw" recited in the claims. The applicants respectfully request amendment of claims 19 and 20 as indicated above. The applicants submit that, as amended, claims 19 and 20 provide an antecedent basis for the recited additional screw and request withdrawal of the rejection and allowance of claims 19 and 20.

The applicant respectfully requests that a timely Notice of Allowance be issued in this case. If the Examiner believes that for any reason direct contact with applicant's attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number below.

Respectfully submitted,  
Chernoff, Vilhauer, McClung & Stenzel, L.L.P.  
1600 ODS Tower  
601 SW Second Avenue  
Portland, Oregon 97204

By:



Timothy A. Long

Reg. No. 28,876

Telephone No. (503) 227-5631  
FAX No. (503) 228-4373